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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,818	10/23/2003	Patrick J. Link	723-1443	5437

27562	7590	01/26/2006	

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EXAMINER
WILLIAMS, ROSS A

ART UNIT	PAPER NUMBER
3713	

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/690,818	LINK, PATRICK J.
	Examiner	Art Unit
	Ross A. Williams	3713

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _17 October 2005_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _6, 14 and 17-34_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _6, 14, 17-34_ is/are rejected.

7)☒ Claim(s) _25_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _6/9/04, 4/22/04._ - 7/9/04

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☒ Other: _IDS 7/9/04._

DETAILED ACTION

Claim Objections

Claim 25 is objected to because of the following informalities: The Examiner

believes that the Applicant incorrectly spelled the word "state machine" as "stage

machine". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly
claiming the subject matter which the applicant regards as his invention.

Claim 6 recites the limitation "said video game platform" in lines 12 and 15.

There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "said processed image" in line 16. There is

insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "said emulated program" in line 18. There is

insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "said audio visual presentation" in line 18. There is

insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "said display unit display area" in line 19. There is

insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitation "said seat-back display unit display area" in line

11. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "said video game platform" in line 18. There is insufficient antecedent basis for this limitation in the claim.

Claim 25 recites the limitation "said video game platform" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 29 recites the limitation "said video game platform" in line 17. There is insufficient antecedent basis for this limitation in the claim.

Claim 31 recites the limitation "the video game platform emulated program counter" in line 22. There is insufficient antecedent basis for this limitation in the claim.

Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim states the limitation of "defining search, transfer, horizontal and vertical blank states." It is unclear to the examiner as to what these states actually refer to. The states specifically "search, transfer, horizontal and vertical blank" states are explained to some degree in the specification, specifically pages 23 – 29. However, the Examiner cannot determine what the states actually represent due to the sparse description.

Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites the limitation of "proving a no-operation look-ahead feature." It is unclear as to what the Applicant means by "proving".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by

Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19

readme.txt dated June 5, 1999.

Regarding claims 6, and 14, Snes9x: The Portable Super Nintendo

Entertainment System Emulator v1.19 (herein referred to as "Snes9x") discloses an

emulator program that emulates the SUPER NINTENDO ENTERTAINMENT SYSTEM.

This emulator program is executed by a target platform such as a PC that is different

than the video game platform (Snes9x page 5). The Snes9x emulator processes and

parses SNES ROM images (Snes9x page 6). The Snes9x emulator produces real time

interactive game presentations on the target platform (Snes9x page 4). The Snes9x

emulator allows the target platform the option of running the emulated games in a

windowed mode or a full screen mode (Snes9x page 7). The emulated platform is a

handheld platform in that a player holds the game controllers of a SNES game system

in their hands, thus constituting a handheld video game system.

Regarding claim 26, Snes9x discloses a CPU cycle timer that enables a user to

set a percentage of CPU cycles to execute per scan line. This enables one to increase

the emulation frame rate (Snes9x page 8).

Regarding claim 27, Snes9x discloses a frame skip count that enable the

selectively skip frames (Snes9x page 8).

Regarding claim 32, Snes9x discloses that a wide variety of joysticks or user

input devices can be used by the Snes9x emulator (Snes9x page 10).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed
> or described as set forth in section 102 of this title, if the differences between the
> subject matter sought to be patented and the prior art are such that the subject
> matter as a whole would have been obvious at the time the invention was made
> to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was
> made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating
   obviousness or nonobviousness.

Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19 as applied above, in view of Nishiumi et al (US 6,007,428).

Regarding claims 17, Snes9x is silent as to what type of display screen that the system can utilize, such as a liquid crystal display. However, Nishiumi et al discloses a video game system wherein the display unit is a liquid crystal display (Nishiumi et al 25:56 – 57).

It would be obvious to one of ordinary skill in the art to modify Snes9x in view of Nishiumi et al for the purpose providing a video emulator system that displays emulated video information on a liquid crystal display. One would be motivated to use a liquid crystal display because they utilize less space and provide accurate video representations.

Regarding claim 18, the combination of Snes9x and Nishiumi et al. would yield a target platform that will display a representation of the emulated video game platform. The claim states the limitation of a "executing a virtual liquid crystal display controller state machine". The Examiner is unclear as to what the Applicant means by this limitation. Thus as best understood by the Examiner, the combination of Snes9x and Nishiumi yields a virtual liquid crystal display controller state machine. The liquid crystal display unit of Nishiumi et al. possesses a liquid crystal display controller for controlling the graphical representations of the game system (Nishiumi et al 25:62 – 65). When emulating a video game platform, the representation of the emulated game platform can be thought of as a virtual representation of how the game would originally be

represented on the video game platform. Thus, the liquid crystal display controller can be thought of as a virtual liquid crystal display controller state machine.

It would be obvious to one of ordinary skill in the art to modify Snes9x in view of Nishiumi et al for the purpose providing a video emulator system that displays emulated video information on a liquid crystal display. One would be motivated to use a liquid crystal display because they utilize less space and provide accurate video representations.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19 readme.txt as applied above and in view of Munshi (US 6,084,600).

Regarding claim 19, Snes9x discloses a video game platform emulator. Snes9x does not disclose the use of hardware assisted BLIT memory transfers. However Munshi et al discloses a system for the speeding up of pixel data transfers (bitblits) by compressing and word aligning the data transferred. Munshi discloses that one way to reduce the amount of required bandwidth in a system when transferring pixel data is to use bitblit operations, wherein a rectangular region within the display memory is specified and data for pixels within the region is transferred (Munshi 1:57 – 62). While, Munshi discloses that this approach is sometimes associated with problems, it is stated that this is still effective for transferring data.

One of ordinary skill in the art would be motivated to modify Snes9x in view of Munshi for the purpose of using Blit operations to transfer pixel data. BLIT operations

are known for reducing the bandwidth loads upon a system when updating pixel

information in memory.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19

readme.txt as applied above and in view of Mackey et al (US 5,153,577).

Regarding claim 20, Snes9x does not disclose a precomputed translation table

that translates the graphics of the video game platform. However, Mackey et al

discloses an emulation system that will emulate a PC on another host system or

platform (Mackey et al 3:51 – 55). The system of Mackey et al. discloses the use of

translation tables (Tables 1, 6 – 9) that determine how that graphical character formats

will be displayed upon the host platform (Mackey 44:60 – 45:60).

One of ordinary skill in the art would be motivated to modify Snes9x in view of

Mackey et al to provide an emulation system that utilizes translation tables to convert

graphic formats that are compatible with the target platform. This would be beneficial

because when running an emulator on a target platform the emulator must be able to

translate the native graphics of the video game platform into a format the target platform

can display.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19

readme.txt as applied above and in view of Sterchi (US 2003/0207712).

Regarding claim 21, the Snes9x system emulates the SNES video game platform. Thus in order to run properly the emulator must emulate or simulate the actual hardware and memory structures of the emulated system. Otherwise the original game ROMS would be rendered useless. Snes9x also discloses that in order for the emulator to run the target platform must have at least 16 MB of RAM (Snes9x page 5). While Snes9x does not specifically disclose that the emulator emulates registers and other hardware based memory structures in RAM, it is highly implied. However, Sterchi et al discloses a system that uses an emulator, wherein the emulator can be run on an entirely different hardware platform than the video game platform. Sterchi also discloses that the emulator may emulate or simulate some or all of the hardware and/or software components of the target system (Sterchi page 2:par 22).

One of ordinary skill in the art would be motivated to modify Snes9x in view of Sterchi et al for the purpose of emulating registers and memory structures of the video game platform in RAM of the target platform. Sterchi discloses an emulator that would emulate all of the hardware or software components of the targets system, thus this would include components such as the registers and memory structures.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19 readme.txt as applied above and in view of Morley (US 5,781,758).

Regarding claim 22, Snes9x does not disclose the uses of a jump table to parse incoming binary instructions. Morley however does disclose an emulation system that

utilizes jump tables for the purpose of reducing memory requirements (Morley 3:21 –

48). Morley discloses that a jump table is commonly referred to as a dispatch table

(Morley 1:42 – 50). Morley discloses that instead of storing every instance of a routine,

the dispatch table will store the routine in memory when it is called and also store the

address of the routine in memory in place of the pointer. Thus speeding up emulation.

One of ordinary skill in the art would be motivated to modify Snes9x in view of

Morley to provide an emulation system that utilizes jump tables or dispatch tables to

reduce the memory requirements on the system. By not storing every instance or a

routine but only the address or a statically stored routine, unnecessary memory usage is

eliminated.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19

readme.txt as applied above and in view of Dahl et al (US 5,819,063).

Regarding claim 23, Snes9x does not disclose specifically the use of a page

table to remap memory access instructions into different memory locations. However,

Dahl et al. discloses a system wherein an emulator program may be used to emulate a

target platform on a different host platform. This emulation system that Dahl et al.

discloses utilizes translation or page tables that associates page selector bits with a 16-

bit page number, which is concatenated to the page offset to access appropriate

physical memory locations (Dahl 5:11 – 43).

One of ordinary skill in the art would be motivated to modify Snes9x in view of

Dahl et al. to provide an emulation system that utilizes page tables for the remapping of

memory access instructions into different memory locations. One would be motivated to

do so because Dahl states that by referencing storage objects through a translation

table, the memory pages associated with a storage object can be scattered in dis-

contiguous memory locations within the main store, while appearing to be contiguous.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19

readme.txt as applied above and in view of Z80-68K-v150 Z80 Engine written in

68020 assembler for inclusion in C/C++ projects, written by Gunter Woigk, dated

Dec 25, 1999.

Regarding claim 24, Snes9x does not disclose a read only memory protection

feature to prevent overwriting of ROM's during emulation. However, Woigk discloses an

emulator package called the z80-68k which supports write protection for ROM's (Woigk

page 2, 6).

One of ordinary skill in the art would be motivated to modify Snes9x in view of

Woigk to provide an emulator that had write protection functions such that the ROM's

don't get overwritten during emulation. This would be of benefit due such that the

ROM's are always protected from being overwritten.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19 readme.txt as applied above and in view of Mullarkey et al. (US 6,192,446).

Regarding claim 28, Snes9x does not disclose the use of a no-operation look ahead feature. However, Mullarkey et al. discloses a no operation look ahead feature that utilizes a look ahead circuit that will examine subsequent instructions and determine what banks in memory the instructions are intended for (Mullarkey 7:8 – 48). If the instructions are not meant for a specific bank of memory than that bank of memory can be powered down, thus optimizing the performance of the chip and system.

One of ordinary skill in the art would be motivated to modify Snes9x in view of Mullarkey et al. for the purpose of providing a no-operation look-ahead feature. This would provide for a more efficient system that optimizes chip performance. If instructions are not meant for specific memories than those memories are not powered up thereby wasting processing time.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19 readme.txt.

Regarding claim 29, Snes9x discloses a video game platform emulator as discussed above. The video game emulator emulates a video game platform on a different target platform. The purpose of the emulator is to emulate the video game platform on the target platform in every way. This would include the video game

platforms memories and registers. Including the size of the registers, such as byte, word and long formats. Thus it would be obvious to create an emulator that emulates these aspects of the video game platform on the target platform.

One of ordinary skill in the art would be motivated to modify Snes9x to emulate the memory structures of the video game platform, wherein the formats include byte, word and long register formats. One would be motivated to do so because these are common register formats and purpose of the emulator is to emulate all aspects of the video game platform on the target platform, thus emulating the register formats.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19 readme.txt as applied above and in view of Farber et al. (US 5,903,760)

Regarding claim 30, Snes9x discloses a video game platform emulator as discussed above. The video game emulator emulates a video game platform on a different target platform. The purpose of the emulator is to emulate the video game platform on the target platform in every way. This would include the way in which the emulated video game platform would handle CPU flags conditions. Snes9x does not specifically disclose the details of how the emulator handles CPU flags. However, Farber et al et al discloses a system of running Reduced Instruction Set Architecture (RISC) code on a system that is meant for Complex Instruction Set Architecture (CISC) or vice versa. Farber discloses that RISC may not support the setting of status flags as CISC would (Farber 2:17 – 22). Thus, Farber discloses a method of executing code

that utilizes the setting of status flags on a system that has no native support for status

flags (Farber 2:64 – 67). Farber discloses the use of a translator that is akin to an

emulator program in that both transform non-native code into a format that the target

platform can utilize (Farber 3:42 – 54). Farber discloses that the translation capsule

table emulates the setting of status flags as part of the translated compare function.

The flags are emulated by allocating bit fields within a general-purpose register (Farber

4:60 – 5:3).

One of ordinary skill in the art would be motivated to modify Snes9x in view of

Farber et al. for the purpose of modeling the emulation of the video game platform to

allow for the updating of CPU flags, as this would enhance the capabilities of the target

platform. The target platform would be able to preserve and emulate a video game

platform that utilizes data such as flags even though the target platform may not natively

do so.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19

readme.txt as applied above and in view of Traut (US 5,790,825).

Regarding claim 31, Snes9x discloses a video game platform emulator as

discussed above. However, Snes9x does not explicitly disclose that the emulated video

game platform program counter is mapped to the target platforms memory, such as in a

general-purpose register. Traut discloses an emulation system, wherein the program

counter of the guest or emulated platform is mapped to the cache of the host or target

platform (Traut 4:17 – 29).

One of ordinary skill in the art would be motivated to modify Snes9x in view of

Traut to provide a system that maps the program counter of the video game platform to

the memory of the target system. This would provide for lower address translation

overhead, thus eliminating burdensome demands on the target platform.

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19

readme.txt as applied above, in view of Munshi (US 6,084,600) and in further view

Nishimoto (JP 4-261589).

Regarding claim 33, Snes9x discloses a video game platform as discussed

above. Snes9x discloses an emulator that can operate in full screen or windowed mode

(Snes9x page 7). Snes9x does not disclose the usage of screen memory buffers that

are larger than the display are to improve paging usage and the transferring of a subset

of said memory buffer using BITBLIT. Nishimoto discloses the displaying of animated

pictures without rewriting graphic display data in an overlay frame buffer. To

accomplish this the overlay frame buffer is larger than the display area of a one-screen

portion, and also changing a position of a display area in the overlay frame buffer by an

overlay scan address generating circuit independently of a main frame buffer, graphic

display data written in the overlay frame buffer can be moved smoothly by a scan timing

on a screen of a CRT (Nishimoto Abstract Translation). By using a larger memory

buffer memory processing due to the constant rendering of the display area would be reduced. Thus display information would not have to be rewritten or transferred out of storage by means of paging. Munshi et al discloses a system for the speeding up of pixel data transfers (bitblits) by compressing and word aligning the data transferred. Munshi discloses that one way to reduce the amount of required bandwidth in a system when transferring pixel data is to use bitblit operations, wherein a rectangular region within the display memory is specified and data for pixels within the region is transferred (Munshi 1:57 – 62). While, Munshi discloses that this approach is sometimes associated with problems, it is stated that this is still effective for transferring data.

One of ordinary skill in the art would be motivated to modify Snes9x in view of Munshi and in further view of Nishimoto to provide a memory buffer that is larger than the display area and using BITBLT to transfer data from memory to the display area. This would enable the system to eliminate memory-processing overhead thus making m. BLIT operations are known for reducing the bandwidth loads upon a system when updating pixel information in memory.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Snes9x: The Portable Super Nintendo Entertainment System Emulator v1.19 readme.txt as applied above, in view of Reed et al. (US 6,058,288).

Regarding claim 34, Snes9x discloses a video game platform as discussed above. Snes9x does not disclose the target platform comprising an airline seat-back controller. Reed et al. however discloses a passenger control unit that is in an airplane

seat. The PCU can be in the armrest or the back of the seat (Reed et al 18:41 – 19:6). The airline system can be used for a plurality of uses such as gaming, computing or watching movies (Reed et al 6:26 – 36). Reed further states that the game system can be used for games like Super Nintendo Entertainment Service, which Snes9x emulates.

One of ordinary skill in the art would be motivated to modify Snes9x in view of Reed et al for the purpose of providing an emulator on a target platform such as an entertainment system on an airplane. This would provide enhance passengers flying experience despite being on long trips.

Citation of Pertinent Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

4,635,188: Discloses the use of Jump tables.

4,447,876: Discloses a system that uses predicative instructions.

6,142,682: Discloses a computer simulation system.

5,560,013: Discloses a computer system that uses paging tables.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ross A. Williams whose telephone number is (571) 272-5911. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Xuan Thai can be reached on (571) 272-7147. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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RAW
1/17/06

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TC3700